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PHILOSOPHICAL  
TRANSACTIONS  
OF THE  
ROYAL SOCIETY  
OF  
LONDON.

FOR THE YEAR MDCCCLXIII.

VOL. 153.—PART I.

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LONDON:

PRINTED BY TAYLOR AND FRANCIS, RED LION COURT, FLEET STREET.

MDCCCLXIII.

## ADVERTISEMENT.

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THE Committee appointed by the *Royal Society* to direct the publication of the *Philosophical Transactions*, take this opportunity to acquaint the Public, that it fully appears, as well from the Council-books and Journals of the Society, as from repeated declarations which have been made in several former *Transactions*, that the printing of them was always, from time to time, the single act of the respective Secretaries till the Forty-seventh Volume; the Society, as a Body, never interesting themselves any further in their publication, than by occasionally recommending the revival of them to some of their Secretaries, when, from the particular circumstances of their affairs, the *Transactions* had happened for any length of time to be intermitted. And this seems principally to have been done with a view to satisfy the Public, that their usual meetings were then continued, for the improvement of knowledge, and benefit of mankind, the great ends of their first institution by the Royal Charters, and which they have ever since steadily pursued.

But the Society being of late years greatly enlarged, and their communications more numerous, it was thought advisable that a Committee of their members should be appointed, to reconsider the papers read before them, and select out of them such as they should judge most proper for publication in the future *Transactions*; which was accordingly done upon the 26th of March 1752. And the grounds of their choice are, and will continue to be, the importance and singularity of the subjects, or the advantageous manner of treating them; without pretending to answer for the certainty of the facts, or propriety of the reasonings, contained in the several papers so published, which must still rest on the credit or judgement of their respective authors.

It is likewise necessary on this occasion to remark, that it is an established rule of the Society, to which they will always adhere, never to give their opinion, as a Body, upon any subject, either of Nature or Art, that comes before them. And therefore the

thanks, which are frequently proposed from the Chair, to be given to the authors of such papers as are read at their accustomed meetings, or to the persons through whose hands they received them, are to be considered in no other light than as a matter of civility, in return for the respect shown to the Society by those communications. The like also is to be said with regard to the several projects, inventions, and curiosities of various kinds, which are often exhibited to the Society; the authors whereof, or those who exhibit them, frequently take the liberty to report and even to certify in the public newspapers, that they have met with the highest applause and approbation. And therefore it is hoped that no regard will hereafter be paid to such reports and public notices; which in some instances have been too lightly credited, to the dishonour of the Society.

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The Meteorological Journal hitherto kept by the Assistant Secretary at the Apartments of the Royal Society, by order of the President and Council, and published in the Philosophical Transactions, has been discontinued. The Government, on the recommendation of the President and Council, has established at the Royal Observatory at Greenwich, under the superintendence of the Astronomer Royal, a Magnetical and Meteorological Observatory, where observations are made on an extended scale, which are regularly published. These, which correspond with the grand scheme of observations now carrying out in different parts of the globe, supersede the necessity of a continuance of the observations made at the Apartments of the Royal Society, which could not be rendered so perfect as was desirable, on account of the imperfections of the locality and the multiplied duties of the observer.

A List of Public Institutions and Individuals, entitled to receive a copy of the Philosophical Transactions of each year, on making application for the same directly or through their respective agents, within five years of the date of publication.

*Observatories.*

Armagh.	Kew.
Cape of Good Hope.	Liverpool.
Dublin.	Madras.
Edinburgh.	Oxford (Radcliffe).
Greenwich.	

*Institutions.*

Barbadoes . . . .	Library and Museum.
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	Geological Museum.
Cambridge . . .	Philosophical Society.
Cape Town . .	South African Library.
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	Entomological Society.
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	Royal Geographical Society.
	Royal Institution of Great Britain.
	Royal Medical and Chirurgical Society.
	Royal Society of Literature.
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Oxford . . . .	Ashmolean Society.
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Sydney . . . .	University Library.
Woolwich . . .	Royal Artillery Library.

*Belgium.*

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*Denmark.*

Altona . . . .	Royal Observatory.
Copenhagen . .	Royal Society of Sciences.

*France.*

Montpellier . .	Academy of Sciences.
	Faculté de Médecine.
Paris . . . . .	Academy of Sciences.
	Dépôt de la Marine.
	Ecole des Mines.
	Geographical Society.
	Geological Society.
	Jardin des Plantes.
	Société d'Encouragement pour l'Industrie Nationale.
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*Germany.*

Berlin . . . . .	Royal Academy of Sciences.
	Society of Experimental Philosophy.
Jena . . . . .	Cæsarean Acad. of Naturalists.
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Giessen . . . . .	University.
Göttingen . . . .	University.
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	Geologische Reichsanstalt.
Würzburg . . . . .	Physico-Medical Society.

*Hungary.*

Pesth . . . . .	Hungarian Academy of Sciences.
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*Italy.*

Catanea . . . . .	Accademia Gioenia di Scienze Naturali.
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Modena . . . . .	Italian Society of Sciences.
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	Collegio Romano.
Turin . . . . .	Royal Academy of Sciences.
Venice . . . . .	Institute of Sciences, Letters, and Arts.

*Java.*

Batavia . . . . .	Batavian Society of Sciences.
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*Netherlands.*

Amsterdam . . . .	Royal Institute.
Haarlem . . . . .	Dutch Society of Sciences.
Rotterdam . . . .	Batavian Society of Experimental Philosophy.

*Portugal.*

Lisbon . . . . .	Royal Academy of Sciences.
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*Russia.*

Kazan . . . . .	Imperial University.
Moscow . . . . .	Imperial Society of Naturalists.
Pulkowa . . . . .	Observatory.
St. Petersburg . .	Imperial Academy of Sciences.

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Cadiz . . . . .	Observatory.
Madrid . . . . .	Royal Academy of Sciences.

*Sweden and Norway.*

Christiania . . . .	Royal University.
Drontheim . . . .	Royal Society of Sciences.
Gottenburg . . . .	Kongl. Vetenskaps och Vitterhets Samhälle.
Stockholm . . . .	Royal Academy of Sciences.

*Switzerland.*

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Geneva . . . . .	Société de Phys. et d'Hist. Naturelle.

*Transylvania.*

Klausenburg . . . .	Society of the Transylvanian Museum.
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*United States.*

Albany . . . . .	New York State Library.
Boston . . . . .	American Academy of Sciences.
Newhaven (Conn.)	The Editors of the American Journal.
Cambridge . . . .	Harvard University.
Philadelphia . . . .	Academy of Natural Sciences.
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Washington . . . .	Smithsonian Institution.
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The fifty Foreign Members of the Royal Society.

A List of Public Institutions and Individuals, entitled to receive a copy of the Astronomical Observations (including Magnetism and Meteorology) made at the Royal Observatory at Greenwich, on making application for the same directly or through their respective agents, within two years of the date of publication.

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Altona.  
 Armagh.  
 Berlin.  
 Breslau.  
 Brussels.  
 Cadiz.  
 Cambridge.  
 Cape of Good Hope.  
 Coimbra.  
 Copenhagen.  
 Dorpat.  
 Dublin.  
 Edinburgh.  
 Helsingfors.  
 Königsberg.  
 Madras.  
 Mannheim.  
 Marseille.  
 Milan.  
 Munich.  
 Oxford.  
 Palermo.  
 Paris.  
 Seeberg.  
 Tübingen.  
 Turin.  
 Vienna.  
 Wilna.

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Aberdeen ..... University.  
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Christie, S. H., Esq. .... Twickenham.  
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Christiania .....	C. Hansteen.
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Paris .....	Meteorological Society.
St. Bernard .....	Convent.
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Dove, Prof. H. W. ....	Berlin.
Erman, Dr. Adolph .....	Berlin.
Fox, R. W., Esq. ....	Falmouth.
Harris, Sir W. Snow .....	Plymouth.
Howard, Luke, Esq. ....	Tottenham.
Kaemtz, Prof. L. F. ....	Dorpat.
Kreil, Prof. K. ....	Vienna.
Kupffer, A. T. ....	St. Petersburg.
(Twelve copies for distribution to the Russian Mag. and Met. Obs.)	
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Phillips, Prof. John .....	Oxford.
Quetelet, A. ....	Brussels.
Sabine, Major-General, R.A. .	London.
Señor de Souza .....	Coimbra.
Vernon, G. V., Esq. ....	Manchester.
Wartmann, Prof. Elie .....	Geneva.
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ADJUDICATION of the MEDALS of the ROYAL SOCIETY for the year 1863 by  
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The COPLEY MEDAL to the Rev. ADAM SEDGWICK, F.R.S., for his original observations and discoveries in the Geology of the Palæozoic Series of Rocks, and more especially for his determination of the characters of the Devonian System, by observations of the order of Superposition of the Killas Rocks and their Fossils, in Devonshire.

A ROYAL MEDAL to the Rev. MILES J. BERKELEY, for his Researches in Cryptogamic Botany, especially Mycology.

A ROYAL MEDAL to JOHN P. GASSIOT, Esq., F.R.S., for his Researches on the Voltaic Battery and Current, and on the Discharge of Electricity through Attenuated Media.

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The BAKERIAN LECTURE was delivered by HENRY CLIFTON SORBY, F.R.S.: it was entitled, "On the Direct Correlation of Mechanical and Chemical Forces."

The CROONIAN LECTURE was delivered by Professor JOSEPH LISTER, F.R.S.: it was entitled, "On the Coagulation of the Blood."

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